About the Report

The 2014 Massachusetts Clean Energy Industry Report is the fourth annual report released by the Massachusetts Clean Energy Center (MassCEC) on the size, scope, and nature of the Commonwealth’s clean energy industry.

MASSACHUSETTS CLEAN ENERGY INDUSTRY REPORT

5,985 Businesses

Increased Global Demand

100K Workers by 2015

2,000 Employers Surveyed

88,372 Jobs

Robust Innovation Ecosystem

2.5% of the state’s total GSP

Strong Local Consumer Markets

$10 Billion industry

2014
MassCEC Mission

• **Create** high-quality jobs and long-term economic growth
• **Accelerate** clean energy technologies, companies and projects
• **Cultivate** a robust marketplace for innovation
• **Support** municipal clean energy projects
• **Invest** in residential and commercial renewable energy installations
Highlights
Massachusetts Clean Energy Industry is Significant

$10 Billion Industry
2.5% of Gross State Product

88,372 jobs
2.4% of total Massachusetts workforce

5,985 firms
2.7% of total Massachusetts companies
Strong Historic Growth

ANNUAL GROWTH OF JOBS (ABOVE) AND FIRMS (BELOW)
Massachusetts Among the Leaders in Investments

Massachusetts is #1 in per-capita in early-stage and growth equity investment, behind only California in total dollars invested in clean energy companies.

From 2011 to 2013, Massachusetts performed better than the U.S. in overall investments and in every category (early-stage, growth equity, structured debt and project finance).

Massachusetts won 28% of ARPA-E grant allocation nationwide in 2013.
Massachusetts’ Strengths
Marketplace is Attractive

Strong local markets with 2 out 3 firms primarily serving customers in Massachusetts

Market-supporting policies

Market leadership:
• No. 1 in U.S. in energy efficiency, 3 years in a row
• 7-year average return on investment for solar energy
Diverse Clean Energy Industry

More balanced than other states in value-chain activities

Firms work with a combination of technologies

PERCENTAGE OF WORKERS (ABOVE) AND FIRMS (BELOW) BY VALUE-CHAIN ACTIVITY
Business Environment and Quality of Life Advantages

Location was cited as the biggest advantage of doing business in Massachusetts.

Access to talent was the next biggest advantage.

Incentives, tax breaks and credits have the greatest impact to accelerating growth.
Clean Energy Business Activity is Statewide
Hiring is Increasingly Difficult

About 1 in 5 businesses report great difficulty finding workers (up from 1 in 10 in 2013)

Nearly 1 in 4 businesses face difficulty finding experienced workers

Firms are still “making do” but concern is growing
Private Investments are Down

PRIVATE INVESTMENTS IN DOLLARS AND PERCENTAGES
Federal Investments are Down

<table>
<thead>
<tr>
<th></th>
<th>2011 to 2013 Trends</th>
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<tbody>
<tr>
<td>U.S. Federal Investment</td>
<td>$6.4 BIL</td>
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<tr>
<td>Massachusetts’ Federal Portion</td>
<td>$160 MIL</td>
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<td>$231 MIL</td>
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<td>$10 MIL</td>
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Technology Highlights: Energy Efficiency
## Energy Efficiency Is Big

<table>
<thead>
<tr>
<th>2014</th>
<th>2015 Projected</th>
<th>2013</th>
<th>2014</th>
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<tbody>
<tr>
<td>65,182 JOBS</td>
<td>72,828 JOBS</td>
<td>3,002 FIRMS</td>
<td>4,072 FIRMS</td>
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<td>11.7%</td>
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<td>35.6%</td>
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- 3 in 4 clean energy jobs are energy efficiency jobs
  - 1 in 5 are in engineering or manufacturing
  - 10,625 are at early-stage companies
- 2/3 customers in Massachusetts
- 1/2 the vendors are outside of Massachusetts
- Energy efficiency firms received 75% of early-stage and 66% of growth equity financing
Many Technologies are Involved Energy Efficiency

- HVAC and Building Controls: 17,764 units
- Lighting: 10,937 units
- Energy Efficient Appliances: 10,318 units
- Energy Efficient Processes and Machinery: 5,799 units
- Weatherization Services: 5,762 units
- Energy Efficient Building Materials: 5,656 units
- Other: 3,115 units
- Smart Grid: 1,088 units
- Water and Wastewater Technologies: 1,535 units
- Demand Response Services: 1,256 units
- Energy Storage: 1,073 units

Total: 65,182 units
Methodology
Methodology

• Employer survey-based methodology
• 1,891 firms responded
• Stratified, clustered sample of firms to be representative by size, region, and type
• Includes “known” firms and sampling from likely industries
• Margin of error well below industry standard
• Executive interviews with employers
• i3 investment data
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